

REMARKS

By the present reply, claims 32-34 have been canceled without prejudice or disclaimer, claim 35 has been amended, and claim 39 has been added. Accordingly, claims 35-39 are submitted for further consideration.

Claim 35 has been revised to specify that the indicated stabilized dissolved oxygen concentration is measured at atmospheric pressure. The change is fully supported in the specification at least at pages 11 and 12 and Fig. 5. New claim 39 is similar to claim 35 as amended; the former calls for "stabilized dissolved oxygen" while the latter calls for "stabilized dissolved oxygen atom."

The Office Action Summary indicates that claims 29-38 are pending and that all claims stand withdrawn from consideration. It is assumed that claims 29-31 are the only claims withdrawn and that claims 32-38 have been treated on the merits. If this understanding is incorrect, the Examiner is asked to contact the undersigned immediately.

Claims 32-38 stand rejected under 35 U.S.C. 103(a) as allegedly obvious over Zelenak '222. In this regard, the Examiner indicates that although Zelenak does not specifically

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teach a stable atomic form of oxygen, it would be reasonable to expect Zelenak's generic description of oxygen to encompass atomic oxygen. Applicant traverses this rejection for the reasons that follow.

The commonly understood meaning of the term "oxygen" is  $O_2$  or molecular oxygen. Oxygen has not heretofore been known to exist stably in its atomic form. Singlet oxygen is generally an excited or higher energy form of oxygen characterized by the spin of a pair of electrons in opposite directions, whereas electron spin is unidirectional in normal molecular oxygen. Singlet oxygen exists for no more than 0.1 seconds. (Stedman's Medical Dictionary, 5<sup>th</sup> unabridged lawyer's edition, Jefferson Lawbook Company, 1982). If the oxygenated water of Zelenak '222 included stable atomic oxygen, given its novelty, Zelenak '222 would have disclosed this feature.

However, as set out at page 8 of the application, this unstable electron situation common to oxygen singlet is altered in the electrolysis method described in the present application to provide oxygen atom not known to exist previously and which has a stabilized valency of electrons. This stabilized form of oxygen is a by-product of the present electrolysis reaction and,

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surprisingly, yields super-oxygenated water having a multitude of uses. It is crucial to note that the method provides a way in which super-oxygenated can be generated in the absence of a pressurized system. Previously, the way in which oxygen was introduced into water was by diffusion under pressure. Zelenak '222 describes such a process for enriching a liquid with oxygen that includes subjecting the liquid to an oxygen pressure of 20 psi and recovering the treated water under oxygen pressure. No such pressure is involved or required to yield or maintain the super-oxygenated water of the present invention.

Having regard to this feature of the invention, claim 35 has been amended to clarify that the super-oxygenated water comprises the stabilized oxygen atom under conditions of atmospheric pressure (i.e. 760 mmHg). The application as filed fully supports this amendment of claim 35. As is clear from the specific example (pages 11-12 of the application), the electrolysis reaction which produces the super-oxygenated water is not conducted in the pressurized system (i.e. conducted at atmospheric pressure) that is standard for other methods of oxygenating water including the method of Zelenak '222 which is discussed above. Moreover, at page 12 of the application, it is

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specifically noted that the properties of the super-oxygenated water are taken at atmospheric pressure (see line 17) .

The claims also stand rejected under 35 U.S.C. 103 as allegedly obvious over the testimonials on the OXY-WATER website. These testimonials disclose super-oxygenated water containing 34 mg/l of dissolved oxygen. The Examiner has also indicated that OXY-WATER may encompass atomic oxygen. Applicant respectfully traverses this rejection as follows.

At the outset, given the novel, unique nature of stable, atomic oxygen, applicant respectfully submits that if the oxygenated water of OXY-WATER contained stable oxygen atom, this would have been disclosed. Again, it is applicant's position that the reference to oxygen would be understood by one of skill in the art at the time of the OXY-WATER disclosure to mean molecular oxygen in the absence of knowledge of any other stable forms of oxygen. The Examiner apparently agrees with this comment in view of her reference in the Office Action to  $PO_2$  and  $O_2$  SAT as being solely a measure of  $O_2$ . This comment is further addressed below. OXY-WATER also discloses (see "What is OXY-WATER?", copy attached) that water is diffused with oxygen to yield oxygenated water. It is respectfully submitted that the

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reference to the process of diffusing water with oxygen implies the use of pressure to introduce and retain the oxygen in the water. Accordingly, the oxygenated water of OXY-WATER is also pressurized in order to retain its high level of oxygen. As set out above, the amended claims define oxygenated water under conditions of atmospheric pressure.

Finally, applicant wishes to address the Examiner's comments with regard to the terms,  $PO_2$  and  $O_2$  Sat. The term " $PO_2$ " refers to the partial pressure of  $O_2$  in a given medium (e.g. the pressure exerted by oxygen dissolved in solution at the air/solution interface), while the term " $O_2$  Sat" refers to the level of oxygen saturation in a given medium (e.g. the ratio of  $PO_2$  in solution to  $PO_2$  in the atmosphere). The more the content of oxygen in a given solution, the higher the  $PO_2$  and the higher the  $O_2$  Sat. Until now, the only stable form of oxygen known to exist in a solution such as water is molecular oxygen ( $O_2$ ). Accordingly, the terms  $PO_2$  and  $O_2$  Sat refer to  $O_2$  rather than to atomic oxygen (O). However, if the oxygen in the solution was in the form of stable oxygen atom, despite the conventional use of the terms  $PO_2$  and  $O_2$  Sat, the measure of  $PO_2$  and  $O_2$  Sat would

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reflect the partial pressure of stabilized oxygen atom and atomic oxygen saturation of the solution.

It is respectfully submitted that the present invention reflects this situation, i.e. that the conventional measure of  $PO_2$  and  $O_2$  Sat in connection with the super-oxygenated water of the present invention is actually measuring the partial pressure of atomic oxygen (PO) and atomic oxygen saturation (O Sat) as this is the form of oxygen generated by the novel electrolysis method of the invention as clearly described in the present application.

Given the foregoing, and the lack of teaching in either of Zelenak '222 or OXY-WATER of the existence of stabilized atomic oxygen, applicant respectfully submits that the claims submitted herewith patentably define the super-oxygenated water aspect of the present invention.

In addition to the fact that the oxygenated water of the present invention comprises stable oxygen atom, which in itself is submitted to patentably distinguish the present super-oxygenated water over the prior art, the super-oxygenated water is oxygenated and retains oxygenation under conditions of

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atmospheric pressure, also a feature neither taught nor suggested in the cited art.

In view of these comments, the Examiner is respectfully requested to reconsider and withdraw the rejections of the claims under 35 U.S.C. 103.

Claim 39 has been added which defines the super-oxygenated water as comprising 9.5 mg/l of oxygen under conditions of atmospheric pressure. For the reasons set out above, this claim is believed to be fully supported by the application as filed and is also believed to patentably distinguish over the cited art.

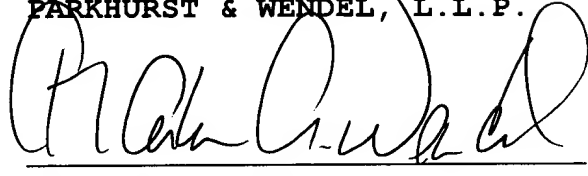
The present application is now believed to be in order for allowance and action to that end is respectfully requested. If the only barrier to allowance is the presence of withdrawn claims 29-31, the Examiner is authorized to cancel those claims for that

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express purpose. The Examiner is asked to contact the undersigned should any further changes be needed.

Respectfully submitted,

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December 9, 2002

Date

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Enclosure:

What is Oxy-Water?

Attorney Docket No.: SWAB:003B

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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE CLAIMS

35. (Amended) Super-oxygenated water comprising stabilized dissolved oxygen atom at a concentration of greater than 9.5 milligrams per liter under conditions of atmospheric pressure.